

EDITORIAL Annual Business

IN anticipation of the 2003 Centennial of Flight celebration, the Editors-in-Chief of the six AIAA archival journals plan to publish a special series of papers throughout the year 2003. Papers addressing Histories of Key Technologies within the scope of each journal are sought on all aspects of aerospace technology. For the *Journal of Guidance, Control, and Dynamics (JGCD)*, these topics are listed under Scope inside the cover. Potential authors are invited to contact me as soon as possible to discuss contributions of interest to our readers.

I am pleased to call your attention to several approaching focus sections. The number of papers in each section will be limited to ensure that each issue will represent a range of technical topics. For the first focus topic, Associate Editor Felix Hoots has organized a set of related papers on the topic of Space-Based Space Surveillance, which many readers should find of interest. In several future issues, Associate Editor Vivek Mukopadhyay will publish papers on the Benchmark Active Control Technology Project at NASA. Based on the third U.S.–Russian Space Surveillance Workshop, Associate Editor Felix Hoots and Guest Editor Terry Alfrend are teaming to publish selected papers to provide our readers with an excellent overview of the state of the art. You, the readers, are encouraged to suggest additional focus topics.

Also with this issue, I am pleased to announce that Associate Editor Prof. Arun Misra, *McGill University*, has volunteered to serve another three-year term covering papers on dynamics and control of flexible spacecraft, deployment dynamics, and multibody systems.

I also welcome four new Associate Editors who are beginning three-year terms:

Dr. Mark Ardema, *University of Santa Clara*, for papers on aircraft and spacecraft flight dynamics, optimal control, differential games, singular perturbation methods, and flight path optimization;

Dr. James Cloutier, *U.S. Air Force Research Laboratory*, Eglin AFB, for papers on nonlinear control, estimation, numerical optimization, missile guidance, navigation and control, and integrated system design;

Dr. Peiman G. Maghami, *NASA Langley Research Center*, for papers on dynamics and control of flexible systems, multibody systems, multidisciplinary design and optimization, and stochastic systems; and

Prof. Minh Phan, *Princeton University*, for papers on system identification, active control of mechanical and aerospace systems, intelligent control, and kinematics.

The complete list of Associate Editors is presented in the following pages.

On behalf of AIAA, I want to thank our retiring Associate Editors Prof. Haim Baruh, *Rutgers University*, Prof. Gene Cliff, *Virginia Polytechnic Institute and State University*, and Prof. Sahjendra Singh, *University of Nevada*, for their unselfish contributions of time and expertise to maintaining the high quality of *JGCD*. Each of them has also individually helped me with various projects and given me advice. I wish them well as they join the distinguished alumni group of former Associate Editors of *JGCD*.

I must also express my gratitude to all our reviewers who perform the peer reviews, which are so necessary to maintain the quality of *JGCD*. The list of reviewers contributing between 1 October 1998 and 30 September 1999 follows the list of Associate Editors. I apologize to any reviewers whose names have been inadvertently omitted from the list.

Finally, I continue to encourage communications between our readers and any member of the Editorial Staff. In July we published a reader survey form and were encouraged with the thoughtful responses and ideas we received. I also believe we did a good job last year in covering the span of interests of our readers and in responding quickly to communications. We can do better and we are willing to listen; please contact me directly. My contact information is as follows:

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GEORGE T. SCHMIDT received his S.B. and S.M. degrees in Aeronautics and Astronautics from the Massachusetts Institute of Technology (MIT) in 1965 and his Sc.D. in Instrumentation from MIT in 1971. Since 1965 he has worked at the Charles Stark Draper Laboratory, Cambridge, Massachusetts, where he is currently Director of Education. His major technical activities have been in GN & C system design for missiles, aircraft, and manned spacecraft; Kalman filtering applications; and integration techniques for high-resolution synthetic aperture radars, global positioning systems (GPS), and inertial sensors. Since 1966 he has served the NATO Research and Technology Agency (formerly AGARD) in many positions, including as a U.S. member of the Guidance and Control Panel. He has also participated in several U.S. Department of Defense committees. He is a lecturer on Aeronautics and Astronautics at MIT. He is an Associate Fellow of the AIAA, a Senior Member of the Institute of Electrical and Electronics Engineers, a member of the Institute of Navigation, and he is an elected member of the Russian Federation, Academy of Navigation and Motion Control. He is author or contributing author of more than 60 technical papers and reports, encyclopedia articles, and textbooks. He has been Editor-in-Chief of the *AIAA Journal of Guidance, Control, and Dynamics* since 1996.

Associate Editors



MARK D. ARDEMA received his Ph.D. degree in mechanical engineering in 1974. From 1965 to 1986 he worked at NASA Ames Research Center. Since 1986 he has been a Professor in the Mechanical Engineering Department at Santa Clara University. From 1986 to 1997 he was Chair of the Department. His research interests have included aircraft and spacecraft flight dynamics, optimal control, differential games, singular perturbation methods, and flight path optimization. He has over 140 publications in these areas. He has helped to organize several technical conferences for AIAA and for the International Federation of Automatic Control. Dr. Ardena is an Associate Fellow of AIAA.



S. N. BALAKRISHNAN is currently a Professor of Aerospace Engineering in the Department of Mechanical and Aerospace Engineering and Engineering Mechanics at the University of Missouri–Rolla (UMR). He received his Ph.D. degree in aerospace engineering at the University of Texas at Austin. Dr. Balakrishnan's professional roles include Lead Engineer, Lockheed Electronics Company, Houston, Texas, where he worked in the space shuttle program; Scientist and Fellow, Center for Space Research, University of Texas at Austin, Faculty Research Fellow, Wright Laboratory (Eglin Air Force Base, Florida). He teaches stability and control and advanced control courses at UMR. His research activities focus on neural networks in trajectory optimization, and control, missile guidance, and multiple target-multiple sensor problems and estimation. He has authored/coauthored about 55 journal and refereed conference papers in these areas. Dr. Balakrishnan is a Member of the AIAA Guidance, Navigation, and Control Technical Committee, an Associate Fellow of AIAA, and Director, American Automatic Control Council.



ARUN K. BANERJEE is a Consulting Scientist in the Advanced Technology Center of Lockheed Martin Missiles and Space Company. His expertise is in multibody elastodynamics, on which he gave an invited lecture on the state of the art in 1992 at the European Space Agency. He received the Engineer-of-the-Year award in 1990 from AIAA, San Francisco Chapter, for a general theory of motion-induced stiffness of structures. Previously he worked for Martin Marietta on the dynamics and control of the tethered satellite, and for Northrop on the dynamics of shuttle booster recovery. Earlier, he taught for five years at the Indian Institute of Technology, Kharagpur. His degrees include a B.E. from Bengal Engineering College, an M.S. from Stanford University, and Ph.D. degrees from the IIT, Kharagpur and the University of Florida. His publications include more than 30 journal articles. Dr. Banerjee is an Associate Fellow of AIAA.



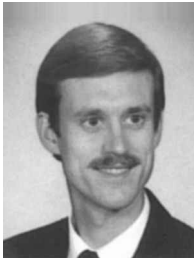
ROBERT H. BISHOP holds the Myron L. Begeman Fellowship in engineering in the Department of Aerospace Engineering and Engineering Mechanics at the University of Texas at Austin. He received his B.S. and M.S. degrees in aerospace engineering from Texas A&M University and his Ph.D. in electrical and computer engineering from Rice University. Dr. Bishop spent ten years as a practicing engineer with the Charles Stark Draper Laboratory, including six years as an on-site resident at NASA Johnson Space Center. He was twice a Faculty Fellow of the NASA Jet Propulsion Laboratory and a Welliver Fellow of The Boeing Company. His current research focuses on various aspects of spacecraft and missile design and includes nonlinear attitude control and momentum management of spacecraft, adaptive estimation using mixture-of-expert hierarchies with application to interplanetary navigation, and development of GN&C systems for autonomous planetary precision landing for future manned missions. The author or coauthor of a number of books, Dr. Bishop has served on the AIAA Guidance, Navigation, and Control Technical Committee and currently serves on the AAS Spaceflight Mechanics Technical Committee. He is an Associate Fellow of AIAA and is active in AAS, IEEE, and ASEE.



ALAIN CARRIER received his Ph.D. in Aeronautics and Astronautics from Stanford University in 1990. Since then he has been working for the Lockheed Martin Advanced Technology Center, leading applied research and optical-precision instrumentation design, modeling, and control. He led the development of several actively controlled electromechanical systems from concept to hardware demonstration, including actively controlled segmented optics, secondary and fast steering mirrors for astronomical telescopes, zero-G slew suspensions for space structures, active and passive vibration isolators, smart actuators, and a latch mechanism actuated by Shape Memory Alloy springs for which he owns a patent. He is the author of the Principal Gain Tracking, a novel testing and system identification technique for high-modal-density lightly-damped structures. He currently leads the development of the pointing control system for HIRDLS (an earth observing radiometer) and the development and experimental demonstration of adaptive control techniques for vibration isolation. His research interests are in isolation, control, and passive damping of broadband and periodic mechanical vibrations for optical instruments; subarcsecond optical pointing and beam control for earth observing, laser communication, and astronomical instruments; actuators and sensors for structural control; dynamics modeling of space structures and instruments; and attitude control, stationkeeping, slews, and orbital maneuvers of spacecraft and "sciencecraft."



JAMES R. CLOUTIER received his B.S. degree from the University of Southwestern Louisiana and his M.A. and Ph.D. degrees from Rice University. He is currently a Principal Research Scientist at the Air Force Research Laboratory, Munitions Directorate, Eglin AFB, Florida, where he is the Manager and Principal In-House Investigator of the AFOSR-funded Task Modern Control and Estimation for Tactical Missiles. He is an Associate Fellow of AIAA and an Air Force Research Laboratory Fellow. His current research interests are in the areas of nonlinear control, nonlinear estimation, and numerical optimization with applications to target state estimation, advanced guidance law development, missile autopilot design, and integrated system design.



RICHARD D. COLGREN is the Lead for Flight Controls on Reconnaissance and Advanced Programs at the Lockheed Martin Skunk Works in Palmdale, California. He earned his B.S.A.A. at the University of Washington, his M.S.E.E. and Ph.D. in Electrical Engineering—Systems at the University of Southern California. He is Principal Investigator on the DARPA Technologies for Reliable Autonomous Control (TRAC) program. Previously he was IPT Lead for Specialist Support on the DarkStar or Tier III-Uninhabited Air Vehicle (UAV), and was IPT Lead for the Vehicle Management System (VMS) for the Lockheed Martin Uninhabited Combat Air Vehicle (UCAV). He was also lead flight controls engineer on the U-2S and on the Air Force Multivariable Control Theory (MCT) project. He has served as project engineer on independent research and development projects including development of the Lockheed flight controls workstation, and on the state reduction of structural dynamic models for control systems design. Previous work includes feasibility studies and preliminary/advanced design flight control system concepts such as the Crew Return Vehicle (CRV) and HL-20 mini-shuttle, Rockwell/Lockheed A-X proposal, X-33, U-2R/S/ST, ER-2, TR-1, JAST, F-22, F-117A, B-2, F-20, and other classified projects. Work on UAV projects includes the Micro Air Vehicle (MAV), Tier II⁺, Tier III⁻, Tier III, and the Wraith Remotely Piloted Vehicle (RPV). Dr. Colgren is a past chairman of the Integrated Controls Subcommittee of the Lockheed Corporate Task Force. He previously worked for the Northrop Advanced Systems Division and the Northrop Aircraft Company. Dr. Colgren is an Associate Fellow of the American Institute of Aeronautics and Astronautics (AIAA). He is a past secretary and is currently a Member of the National AIAA Technical Committee on Guidance, Navigation, and Control. He was the AIAA review chairman for the 1992 American Control Conference, and was the co-chair for the 1998 conference. He also was the Program Chairman of the 1996 AIAA Guidance, Navigation, and Control Conference. Dr. Colgren is an ABET/EAC (Accreditation Board for Engineering and Technology, Inc.) aeronautical engineering evaluator. He is an Adjunct Professor in Electrical Engineering at the University of Southern California. He is a past Associate Editor for the *Journal for Theoretical and Computational Graphics* and for *Workstation News*.



HARI B. HABLANI received his B.S. (Mechanical Engineering) in 1972 from Government College of Engineering and Technology, Raipur, Madhya Pradesh, and his M.S. in 1974 and Ph.D. in 1978 (both in Aeronautical Engineering) from the Indian Institute of Science, Bangalore, India. He passed his M.S. with distinction and his Ph.D. with the P.S. Narayan Gold Medal. During 1978–80, he was a postdoctoral fellow in the Department of Aeronautical and Astronautical Engineering, Purdue University, West Lafayette, Indiana, and for the subsequent two years he was a NASA National Research Council Resident Associate at Johnson Space Center, Houston, Texas. Since 1982, he has been with Boeing (formerly Rockwell International) Electronic Systems and Missile Defense, Anaheim, California, where currently, he is a Principal Engineering Specialist in Guidance, Navigation, and Control Group. In the past 17 years, he has been involved with detailed design and simulation of various aspects of attitude control, determination, and guidance of over a dozen spacecraft, satellites, and interceptors. Dr. Hablani has received numerous awards for his contributions, including the Leonardo da Vinci (the Spirit of the Renaissance) Engineer of the Year 1991 award and patent and innovation awards. He has published 25 internal technical reports and 30 technical papers in his field. His interests are varied and include spacecraft attitude control and determination, multibody flexible dynamics and control, precision pointing and tracking, and guidance and navigation of exoatmospheric interceptors and interplanetary spacecraft. He is an Associate Fellow of AIAA and an Associate Technical Fellow of the Boeing Company.



CHRISTOPHER D. HALL is an Assistant Professor of Aerospace and Ocean Engineering at Virginia Polytechnic Institute and State University. Before assuming his present position in 1997, he taught for five years in the Department of Aeronautics and Astronautics at the Air Force Institute of Technology. He earned his B.S. in aerospace engineering from Auburn University (1984), his M.S. in systems engineering at the Air Force Institute of Technology (1988), and his Ph.D. in theoretical and applied mechanics from Cornell University (1992). His research interests include spacecraft attitude dynamics and control, space systems design, and nonlinear oscillations. He is a Member of the Phi Kappa Phi, Sigma Gamma Tau, and Tau Beta Pi Honorary Societies, and the recipient of a Tau Beta Pi Outstanding Professor Award in 1993, the Colonel Charles A. Stone Leadership Award in 1996, and the Ralph R. Teetor Educational Award in 1997. He is an Associate Fellow of AIAA and is currently serving on the AIAA Astrodynamics Technical Committee, as well as its subcommittee on education.



GARY L. HARTMANN is a Principal Research Fellow in the Control and Navigation Department of Honeywell's Technology Center in Minneapolis, Minnesota. He received a M.S. in electrical engineering from Iowa State University (1967) and has completed his Ph.D. course work in control sciences at the University of Minnesota. Since joining Honeywell in 1968, he has served as an individual contributor and managed R&D programs. His major activities have been the design of flight control laws with modern control techniques for a variety of developmental and production aircraft, development of avionics architectures for flight critical applications, and design of Kalman filters. His current interests include aided navigation systems, modeling and design of flight and propulsion control systems, and flight management systems architectures that provide new CNS/ATM functions. Mr. Hartmann is a Member of IEEE and a Senior Member of AIAA.



FELIX R. HOOTS received his B.S. degree in physics (1969) and his M.S. degree in mathematics (1971) from Tennessee Technological University and his Ph.D. in mathematics (1976) from Auburn University. He began his professional career in civil service as a mathematician for the 14th Aerospace Force headquartered in Colorado Springs, Colorado. His research there involved development of analytical models for satellite orbit prediction with atmospheric drag, ground site visibility, and satellite close approach prediction. In 1986 he joined GRC International and now serves as Chief Scientist of the Decision Technologies Division. Dr. Hoots has published papers in leading technical journals, has reviewed numerous papers for these journals, and has taught both short courses and full semester courses in astrodynamics, engineering mathematics, and partial differential equations for the University of Colorado. He is an Associate Fellow of AIAA, has served on its Astrodynamics Technical Committee, and has served as General and Technical Chairman for the annual Astrodynamics Conferences. He is a Fellow of the American Astronautical Society and currently serves as the Chair of the Space Flight Mechanics Technical Committee.



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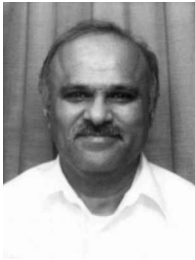
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